

# United States Patent [19]

Ruffner et al.

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[54] **ACRYLIC EMULSION COPOLYMERS FOR THICKENING AQUEOUS SYSTEMS AND COPOLYMERIZABLE SURFACTANT MONOMERS FOR USE THEREIN**

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## Related U.S. Application Data

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[52] U.S. Cl. .... **526/270; 526/301; 524/555; 524/549; 549/476**

[58] Field of Search ..... **526/270, 301, 302; 524/555**

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## [57] ABSTRACT

Acrylic emulsion copolymers are prepared by emulsion polymerization of (A) a surfactant monomer, (B) an  $\alpha$ ,  $\beta$ -ethylenically unsaturated carboxylic acid monomer, (C) a nonionic  $\alpha$ ,  $\beta$ -ethylenically unsaturated monomer and (D) optionally a polyethylenically unsaturated cross-linking monomer. The surfactant monomer is prepared by condensing a polyhydric alcohol or primary amine-containing nonionic surfactant with a monoethylenically unsaturated monoisocyanate. At a low pH the copolymer may be in the form of an aqueous dispersion or latex, but thickens upon neutralization of at least some of the carboxyl groups.

26 Claims, No Drawings